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WATER SUPPLY OUTLOOK FOR WYOMING



U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

STATE ENGINEER of WYOMING

AS OF
JUNE 1, 1977

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW COURSE MEASUREMENTS BY A SURVEY TEAM IN UTAH'S WASATCH RANGE.
ORC-254-10

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, 6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR WYOMING

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

R. M. DAVIS
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D. C.

|||||

Released by

BLAINE O. HALLIDAY
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
CASPER, WYOMING

In Cooperation with

GEORGE L. CHRISTOPULOS
STATE ENGINEER
STATE OF WYOMING

|||||

Report prepared by

JAMES W. HAGLUND, Snow Survey Supervisor
JON G. WERNER, Assistant Snow Survey Supervisor
and
MARILYN A. STARKS, Statistical Assistant

SOIL CONSERVATION SERVICE
P.O. BOX 2440
CASPER, WYOMING 82601

C O N T E N T S

January 1, 1977 Measurements

May 15 and June 1 Measurements

*Corrections and Additions to
1977 Outlook reports*

Precipitation for month of May

Reservoir Storage at the end of May

*This is the last report of the season;
the 1978 reports will begin with the
February 1 issue.*

SNOW -- SUPPLEMENTAL MEASUREMENTS

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
					Last Year	Average †
NAME	Elevation					
<u>JANUARY 1, 1977</u>						
Afton Ranger Station	6240	12/29	4	0.6	1.6	2.2*
Arizona	6820	12/30	12	1.2	10.3	7.8
Aster Creek	7750	12/29	13	1.3	17.7	12.7
Base Camp	7030	12/30	13	1.6	11.2	8.1*
Canyon	7940	12/31	17	3.2	10.4	6.1*
Casper Mountain	7850	1/05	24	4.2	7.4	5.9*
CCC Camp	7000	12/29	6	0.8	5.0	4.9
Cooke Station	8150	12/27	25	4.4	14.0	-
Coulter Creek	7020	12/31	20	3.1	16.6	-
Darby Canyon	8250	12/27	19	3.4	-	-
East Entrance	6960	12/29	10	1.6	8.5	4.2*
Fisher Creek	9100	12/27	42	7.9	26.2	14.4
Freds Mountain	8000	12/27	17	2.9	-	-
Glade Creek	7040	12/29	17	2.0	15.1	8.6
Grassy Lake	7265	12/29	24	3.5	22.9	14.1
Greys River Boundary	5720	12/29	6	0.8	5.2	4.4*
Grover Park Divide	7000	12/29	5	0.7	5.2	5.1
Huckleberry Divide	7300	12/30	15	2.2	11.7	8.8
Indian Meadows	8240	12/27	21	3.8	-	-
Jackpine Creek	7350	12/27	11	1.4	-	-
Lake Camp	7780	1/02	10	1.1	6.6	3.5
Lewis Lake Divide	7850	12/29	20	2.9	26.6	17.0
Lupine Creek	7380	1/02	12	1.6	8.0	4.4*
Miles Creek	7300	12/27	10	1.5	-	-
Moran	6750	12/30	12	1.4	7.3	5.3
Norris Basin	7500	1/04	15	2.2	7.7	4.6
Northeast Entrance	7400	12/27	15	2.6	6.6	3.6
Old Faithful	7360	12/29	8	1.5	9.6	-
Salt River Summit	7700	12/30	7	0.9	7.4	6.4
Snake River Station	6920	12/29	16	2.0	12.7	8.2
Snow King Mountain	7660	12/30	10	1.6	4.9	6.5
Sylvan Pass	7100	12/29	13	2.3	10.0	5.8
Thumb Divide	7980	12/29	12	1.3	11.1	9.2*
Togwotee Pass	9580	12/30	21	3.7	17.7	14.6*
Twenty-One Mile	7150	12/30	14	2.2	10.6	7.3
West Yellowstone	6700	12/30	9	0.9	8.6	4.6
White Mill	8700	12/27	31	5.2	20.8	-
<u>MAY 15, 1977</u>						
Bottle Creek	8700	5/12	0	0.0	0.0	2.7*
North French Creek	10180	5/13	44	21.6	34.8	33.7
Old Battle	9920	5/12	21	9.0	35.9	32.0
Ryan Park	8350	5/13	0	0.0	0.0	4.4*
Webber Spring	9250	5/12	0	0.0	14.4	9.7*
<u>JUNE 1, 1977</u>						
Grassy Lake	7265	5/31	0	0.0	15.7	-
Lewis Lake Divide	7850	5/31	0	0.0	34.7	-
North French Creek	10180	6/02	36	19.1	28.9	25.2*
Old Battle	9920	6/02	3	1.3	25.6	20.6*
Togwotee Pass	9580	5/31	21	9.8	26.5	-

*Average does not contain 15 years of record.

† 1958-1972 period.

SNOW

-- ADDITIONS AND CORRECTIONS

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
					Last Year	Average †
NAME	Elevation					
<u>FEBRUARY 1, 1977</u>						
<u>Corrections:</u>						
Two Ocean Plateau Aerial	9160	1/31	33*	7.9*	22.8	-
<u>MARCH 1, 1977</u>						
<u>Additions:</u>						
Blind Bull Summit Aerial	8650	3/04	28	6.4	23.7	24.4
Cottonwood Lake Aerial	7600	3/04	26	5.2	19.2	17.2
Youngs Ranch Aerial	6650	3/04	22	4.6	16.8	-
<u>APRIL 1, 1977</u>						
<u>Additions:</u>						
Bald Mountain	9380	4/07	105	28.4e	25.4	23.9
Bald Mountain Pillow	9380	4/07	-	26.5	-	-
Beaver Tongue Divide	9650	4/07	82	26.4	24.0	21.8
Big Goose	7760	4/08	45	11.6	10.8	8.4
Burgess R.S.	7880	4/07	58	15.6	10.4	9.0
Burgess R.S. Pillow	7880	4/07	-	17.7	-	-
Dome Lake	8880	4/08	52	13.6	13.6	10.6
Dome Lake Pillow	8880	4/08	-	13.4	-	-
Granite Pass	9100	4/06	70	18.9	18.7	17.2
Medicine Wheel	8960	4/07	84	25.3	19.0	18.4
Parkers Peak Aerial	9400	4/06	64	14.7	43.4	-
Pitchstone Plateau Aerial	8520	4/06	73	19.0	80.2	-
Sibley Lake	7920	3/31	71	17.8	13.5	11.8
Steamboat Point	7560	3/31	56	13.3	11.0	9.2
Sucker Creek	8880	4/06	70	18.0	14.0	14.2
Two Ocean Plateau Aerial	9160	4/06	35	9.1	41.0	-
Younts Peak Aerial	8350	4/06	34	10.2	26.6	-
<u>Corrections:</u>						
Carter Mountain	7950	3/30	27	4.2*	7.1	4.9
Marquette Creek	8760	3/31	38	8.0*	9.9	-
<u>MAY 1, 1977</u>						
<u>Corrections:</u>						
Powder River Pass Pillow	9480	5/01	-	5.0*	-	-

* Corrected figure
e Estimate

PRECIPITATION (Inches) FOR MONTH OF MAY

DRAINAGE BASIN and PRECIPITATION GAGE LOCATION	ELEVATION	CURRENT INFORMATION		PAST RECORD	
		Date of Reading	Precipitation	Last Year	Average [†]
<u>LOWER YELLOWSTONE</u>					
Carter Mountain	7950	5/27	3.40	1.95	
Louis Lake	8500	6/01	2.62	N.R.	
Onion Gulch	8780	6/01	3.25	N.R.	
Powder River Pass	9475	6/01	3.72	2.40	2.62*
Timber Creek	7950	5/31	2.90	3.10	
Togwotee Pass	9600	5/31	4.40	2.35	3.30*
<u>NORTH PLATTE</u>					
Casper Mountain	7850	6/02	3.19	3.25	4.58*
North French Creek	10130	6/02	6.31	N.R.	3.27*
Old Battle	9900	6/02	6.63	N.R.	3.50*
South Brush Creek	8440	5/31	5.40	1.75	
Webber Spring	9240	5/02	4.56	1.69	
<u>GREEN RIVER</u>					
Battle Mountain	7440	5/31	3.00	2.40	
East Rim Divide	7950	6/02	2.25	1.55	2.24*
Haskins Creek	8800	5/31	4.95	N.R.	
Sandstone R.S.	8140	5/31	4.30	4.50	
<u>SNAKE RIVER</u>					
Grassy Lake	7265	5/31	6.45	2.40	3.60*
Grover Park Divide	7000	5/31	4.05	1.90	
Lewis Lake Divide	7860	5/31	4.10	2.40	3.25*
Moran (NWS)	6500	5/31	2.80	0.92	1.81*
Salt River Summit	7600	5/31	3.38	1.00	1.06*
Snake River Station (NWS)	6920	5/31	4.06	1.36	2.39*
<u>BEAR RIVER</u>					
Kelley R.S.	8180	5/31	4.00	1.20	2.28*
<u>BELLE FOURCHE</u>					
Bearlodge Divide	4680	5/31	3.45	2.72	3.96
Sweetwater Mountain	5860	5/31	1.78	N.R.	
Warren Peak	6520	6/01	0.30	1.32	2.60*
(NWS) National Weather Service precipitation gage					
* Average does not contain 15 years of record					

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

DRAINAGE BASIN RESERVOIR	Usable Capacity	PAST RECORD Usable Storage		
		This Year	Last Year	Average [†]
<u>SNAKE</u>				
Grassy Lake	15.1	14.1	13.2	13.2
Jackson Lake	847.0	686.0	538.0	664.5
Palisades	1200.0	764.2	464.2	794.3
<u>NORTH PLATTE</u>				
Seminole	1010.5	617.3	712.1	441.2
Pathfinder	1015.9	670.5	870.7	416.9
Alcova	30.7	25.6	26.6	26.2
Glendo	783.7	413.9	491.2	473.2
Guernsey	45.2	33.2	36.2	34.1
<u>BELLE FOURCHE</u>				
Keyhole	190.4	133.4	131.8	86.1
<u>WIND RIVER</u>				
Bull Lake	151.8	58.8	94.1	83.1
Pilot Butte	31.6	24.9	24.6	25.7
Boysen	549.9	334.5	192.4	252.7
<u>BIGHORN RIVER</u>				
Bighorn	1356.0	982.9	764.0	810.3
<u>SHOSHONE RIVER</u>				
Buffalo Bill	373.1	186.6	200.1	181.4
<u>GREEN RIVER</u>				
Big Sandy	38.3	- Delayed	Report -	
Fontenelle	344.8	185.5	224.6	-
Flaming Gorge	3749.0	2498.6	3473.0	-
<u>SOUTH DAKOTA RESERVOIRS</u>				
<u>BELLE FOURCHE</u>				
Belle Fourche	185.2	- Delayed	Report -	
<u>CHEYENNE RIVER</u>				
Angostura	86.2	48.1	52.5	66.7
Deerfield	15.1	14.9	15.0	11.9
Pactola	55.0	53.6	52.4	41.1
<u>GRAND RIVER</u>				
Shadehill	81.5	- Delayed	Report -	

Agencies Cooperating in Wyoming Snow Surveys

FEDERAL

U.S. Department of Agriculture
Forest Service
Soil Conservation Service

U.S. Department of Commerce
NOAA, National Weather Service

U.S. Department of Interior
Bureau of Reclamation
Geological Survey
National Park Service
Indian Service

STATE

State Engineer of Wyoming

University of Wyoming
Department of Atmospheric Resources
Department of Agricultural Engineering

PRIVATE

Irrigation Districts
Greybull Valley Irrigation District
Wheatland Irrigation District

Conservation Districts
Big Piney
Big Sandy
Bridger Valley
Clearwater
Cody
Dubois-Crowheart
Greybull-Shell
Lake DeSmet
LaPrele-Glenrock
Laramie Rivers
Lincoln
Little Snake River
Medicine Bow
Pinedale
Platte County
Powder River
Powell-Clarks Fork
Riverton
Saratoga-Encampment-Rawlins
Shoshone
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SOIL CONSERVATION SERVICE

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